

**Louisiana Department of Environmental Quality (LDEQ)**  
**Office of Environmental Services**

**STATEMENT OF BASIS**

**Solvents/EDC I Plant**  
**The Dow Chemical Co - Louisiana Operations**  
**Plaquemine, Iberville/West Baton Rouge Parish, Louisiana**  
**Agency Interest Number: 1409**  
**Activity Number: PER20080021**  
**Proposed Permit Number: 2188-V1**

**I. APPLICANT**

**Company:**

The Dow Chemical Co - Louisiana Operations  
PO Box 150  
Plaquemine, Louisiana 70765-0150

**Facility:**

The Dow Chemical Co  
21255 Hwy 1  
Plaquemine, Iberville/West Baton Rouge Parish, Louisiana,  
Approximate UTM coordinates are 668.6 kilometers East and 3355.3 kilometers  
North, Zone 15.

**II. FACILITY AND CURRENT PERMIT STATUS**

Dow Chemical Co - Louisiana Operations operates the Solvents/EDC I Plant in the Louisiana Operations complex. The Solvents/EDC I Plant operates under Title V Permit 2188-V1 issued on January 30, 2004.

Dow Chemical Co - Louisiana Operations is a designated Part 70 source. Several Part 70 permits have been issued to the operating units within the Dow Chemical Plaquemine facilities. These include:

Permit No.	Unit or Source	Date Issued
2007-V2	Glycol I Plant	12/13/2006
2008-V4	Polyethylene A Plant	03/26/2008
2024-V3	Light Hydrocarbons III Plant	09/13/2006
2025-V2	Vector SBC Plant	06/25/2007
2048-V2	Polyethylene C Plant	11/19/2008
2179-V6	Polyethylene B Plant	02/22/2008
2188-V0	Solvents/EDC I Plant	01/30/2004
2200-V1	Chlorinated Polyethylene Plant	12/01/2004
2227-V5	Cellulose Plant	02/08/2008

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2267-V2	Power & Utilities Plant	08/28/2006
2285-V3	Vinyl II Plant THROX Boilers	01/25/2007
2573-V4	Chlorine Cell Service Plants	05/21/2007
2665-V7	Vinyl II Plant	06/25/2007
2037-V1	Chlorinated Methanes Plant (CMP)	05/29/2007
2203-V1	Glycol II Plant	06/20/2005
2255-V1	Light Hydrocarbons II Plant	04/30/2007
2235-V0	Railroad Tank Car Cleaning Facility	01/18/2006
2190-V0	Environmental Operations Plant	05/31/2006

### **III. PROPOSED PROJECT/PERMIT INFORMATION**

#### **Application**

A permit application was submitted by Dow Chemical Co on July 28, 2008 requesting a Part 70 operating permit renewal/modification.

#### **Project**

There are no projects associated with this permit renewal/modification. The only change is updating the emissions calculations.

#### **Proposed Permit**

Permit 2188-V1 will be the renewal/modification of Part 70 Operating Permit 2188-V0 for the Solvent/EDC I Plant within the Dow Chemical Co - Louisiana Operations.

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**Permitted Air Emissions**

Estimated emissions in tons per year are as follows:

<u>Pollutants</u>	<u>Before</u>	<u>After</u>	<u>Change</u>
CO	13.42	13.40	-0.02
NOx	23.01	23.02	+0.01
PM <sub>10</sub>	2.03	2.00	-0.03
SO <sub>2</sub>	5.04	5.02	-0.02
VOC	30.51	58.89	+28.38
Chlorine	1.22	1.27	+0.05
Dichloromethane	3.65	3.68	+0.03
Hydrochloric acid	7.05	6.65	-0.40
Sulfuric Acid	0.23	0.23	-
Tetrachloroethylene	5.99	7.43	+1.44
Metals	0.07	0.27	+0.20

#### IV REGULATORY ANALYSIS

The applicability of the appropriate regulations is straightforward and provided in the Specific Requirements section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are also provided in the Specific Requirements section of the proposed permit.

##### Applicability and Exemptions of Selected Subject Items

Applicability and exemptions of selected subject items are listed as Table 1 and 2 at the proposed Part 70 Operating Permit.

##### Prevention of Significant Deterioration/Nonattainment Review

There is no project associated with this permit renewal. Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR) are not required.

##### Streamlined Equipment Leak Monitoring Program

Fugitive emissions from the Solvent/EDC I plant will be subject to LAC 33:III.2122, 40 CFR 63 Subpart H-HON

Unit or Plant Site	Programs being streamlined	Stream Applicability	Overall Most Stringent Program
Solvents/EDC I Plant	40 CFR 63 Subpart H-HON	5% VOHAP	40 CFR 63 Subpart H-HON
	LAC 33:III.2122	10% VOC	
	40 CFR 61 Subpart J	Emission Standard for Equipment Leaks of Benzene	

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**MACT Requirements**

The facility is subject to Louisiana MACT requirements. Detailed requirements are listed in the Specific requirements Section of the draft permit.

**Air Quality Analysis**

Dispersion Model(s) Used: ISC3

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Toxic Air Pollutant Ambient Air Quality Standard or (National Ambient Air Quality Standard {NAAQS})
1,3-Butadiene	Annual	0.90	0.92
Benzene	Annual	6.29	12
Chlorinated Dibenzo Furans	Annual	0.002	0.003
1,2-Dichloroethane	Annual	3.13	3.85
Ethylene Oxide	Annual	0.56	1.0
Vinyl Chloride	Annual	1.17	1.19
Biphenyl	8-hour	6.71	31
Chlorine	8-hour	6.79	35.7
Sulfuric Acid	8-hour	2.33	23.8
Hydrochloric Acid	8-hour	88.53	180.0
Mercury	8-hour	0.12	1.19

**General Condition XVII Activities**

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to the Section VIII – General Condition XVII Activities of the proposed permit.

**Insignificant Activities**

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to the Section IX – Insignificant Activities of the proposed permit.

**V. PERMIT SHIELD**

No permit shield is requested.

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**VI. PERIODIC MONITORING**

The Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the proposed permit.

**VII. GLOSSARY**

Carbon Monoxide (CO) – A colorless, odorless gas, which is an oxide of carbon.

Maximum Achievable Control Technology (MACT) – The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

Hydrogen Sulfide (H<sub>2</sub>S) – A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the reaction of acids on metallic sulfides, and is an important chemical reagent.

New Source Review (NSR) – A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO<sub>x</sub>) – Compounds whose molecules consist of nitrogen and oxygen.

Organic Compound – Any compound of carbon and another element. Examples: Methane (CH<sub>4</sub>), Ethane (C<sub>2</sub>H<sub>6</sub>), Carbon Disulfide (CS<sub>2</sub>)

Part 70 Operating Permit – Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit:  $\geq 10$  tons per year of any toxic air pollutant;  $\geq 25$  tons of total toxic air pollutants; and  $\geq 100$  tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM<sub>10</sub> – Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

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Potential to Emit (PTE) – The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO<sub>2</sub>) – An oxide of sulfur.

Sulfuric Acid (H<sub>2</sub>SO<sub>4</sub>) – A highly corrosive, dense oily liquid. It is a regulated toxic air pollutant under LAC 33:III.Chapter 51.

Title V Permit – Sec Part 70 Operating Permit.

Volatile Organic Compound (VOC) – Any organic compound, which participates in atmospheric photochemical reactions; that is, any organic compound other than those, which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.

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